Bowker and Jackson, 1989 Data Set 8

Reference: Bowker, K.A., and W.D. Jackson, 1989, The Weber Sandstone at Rangely Field, Colorado: in Coalson, E.B. et al, eds., Petrogenesis and petrophysics of selected sandstone reservoirs of the Rocky Mountain region, Rocky Mountain Association of Geologists, p. 65-80.

Author's affiliation: Chevron USA, Inc.

Age: Permian-Pennsylvanian

Formation: Weber Sandstone

Location: Rangely Field, Piceance Basin, Rio Blanco County, Colorado, United States

Well: No. 139Y UPRR well in center of field

Depth range: 5600-6300 feet.

Lithology: "Weber lithofacies were classified as cross laminated (mostly dune deposits), massively bedded (bioturbated eolian zones), and arkosic (fluvial sandstones, siltstones, and shales). ... The subarkosic sandstone with cross-laminated structure is the reservoir facies of the Weber Sandstone. ... The more thoroughly cemented massive (bioturbated) facies contains a lower percentage of effective porosity (defined as porosity greater than 10% and permeability greater than one md) compared with cross-laminated sandstones. ... The arkosic (fluvial) sandstones and siltstones are rarely effective as reservoirs."

Alteration: "Most of the porosity loss is due to carbonate cements. Calcite and dolomite precipitation was followed by ferroan calcite and ferroan dolomite … Both calcite and dolomite have replaced quartz (including overgrowths) and feldspar grains. In the cross-laminated facies, most of the carbonate cement is found in the very fine-grained portion of the laminae....Clay accounts for less than five percent of the reservoir rock; it is much more abundant in less porous portions of the Weber. ...Following the formation of clays, dolomite, calcite, and feldspars were leached. ...Perhaps as much as a quarter of the Weber porosity is secondary, as indicated by oversized pores and channel-like porosity."

Production: oil.

Core measurement conditions: Permeability is measured to air, with no Klinkenberg or overburden pressure corrections; measurements made parallel to laminae, if present. Porosity measured by Boyle's Law (helium) method.

Data entry: manual entry, selecting every third point, from Figure 13 of the referenced paper.